

S/N TBD  
Docket: CS03-046  
Group art unit : \_\_ TBD

Date 12/22/2003

To: **Commissioner of Patents and Trademarks**  
**P.O. Box 1450 Alexandria, VA 22313-1450**

Fr: **William J. Stoffel** Reg. No. 39,390 CUST NO. 30402  
**PMB 455**  
**1735 Market St - Suite A**  
**Philadelphia, PA 19103**

Subject:

Serial No. TDB  
Docket CS03-046  
File Date: with application  
Inventor: Tan et al.

**title: Shallow Amorphizing Implant For Gettering Of  
Deep Secondary End Of Range Defects**

#### **INFORMATION DISCLOSURE STATEMENT**

Enclosed is Form PTO A820 (also PTO-1449), Information Disclosure Citation and references.

#### **CERTIFICATE OF MAILING OR EXPRESS MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450 Alexandria, VA 22313-1450, on Dec 22, 2003.

Signature/Date William J. Stoffel 12/22/03  
William J. Stoffel Reg. No. 39,390  
Customer number 30402

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The following Patents and/or Publication are submitted to comply with the duty to disclose under CFR 1.97-1.99 and 37 CFR 1.56.

US 2003/0013260A1(Gossmann et al.) a method of implanting vacancy-generating ions into a preselected region of the body.

US 2003/0096490 A1 - Borland, et al. - A method for forming a shallow junction in a semiconductor wafer may include amorphizing the wafer, implanting a dopant material into the wafer, and activating the dopant material by thermal processing. The control of the EOR depth through a preamorphizing implant to less than the junction depth provides for a low leakage junction and the low-temperature SPE anneal prevents diffusion of the dopant beyond the desired junction depth.

US 2002/0001926 A1 -Noda - shows a process for a Ir pocket implant.

US 6,537,886b2(Lee) and US 2001/0041432A1 Lee show a shallow jct process.

US 2003/0049917 A1(Noda) shows a multiple I/I and anneal process.

US 6,475,885B1(Sultan) shows a S/D formation process.

Noda, "Evolution of end-of-range damage and transient enhanced diffusion of indium in Silicon", Journal of applied physics, vol 91, #2 15 Jan 2002, pp 639-645.

Yeh et al., "Optimum halo structure for sub-0.1.  $\mu$ m cMOSFETs, IEEE trans on electronic devices, vol. 48, # 10, Oct 2001, pp. 2357 -2362.

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Lisebarger, et al., "Study of end of range loop interactions with B<sup>+</sup> implant damage using a boron doped diffusion layer", J. Appl. Phys. 78 (4), 15 August 1995, pp. 2298-2302.

Lu et al., "Reduction of secondary defect formation in MeV B + ion-implanted Si(100)", Appl. Phys. Lett., 55 (18), 30 Oct 1989. pp. 1838 - 1840.

Sincerely  
  
William J. Stoffel  
Reg. No. 39,390  
Customer number 30,402

<b>INFORMATION DISCLOSURE CITATION</b> <i>(Use several sheets if necessary)</i>				Docket Number (Optional) <b>CS03-046</b>		Application Number	
				Applicant(s) <b>Tan</b>			
				Filing Date		Group Art Unit	
<b>U.S. PATENT DOCUMENTS</b>							
*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
		US 2003/0013260A1		Gossmann et al.			
		US 2003/0096490 A1		Borland, et al			
		US 2002/0001926 A1		Noda			
		US 6,537,886b2		Lee			
		US 2003/0049917 A1		Noda			
		US 6,475,885B1		Sultan			
<b>FOREIGN PATENT DOCUMENTS</b>							
REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
						YES	NO
<b>OTHER DOCUMENTS</b> <i>(Including Author, Title, Date, Pertinent Pages, Etc.)</i>							
		Noda, "Evolution of end-of-range damage and transient enhanced diffusion of indium in Silicon", Journal of applied physics, vol 91, #2 15 Jan 2002, pp 639-645.					
		Yeh et al., "Optimum halo structure for sub-0.1. m cMOSFETs, IEEE trans on electronic devices, vol. 48, # 10, Oct 2001, pp. 2357 -2362.					
		Lisebarger, et al., "Study of end of range loop interactions with B <sup>+</sup> implant damage using a boron doped diffusion layer", J. Appl. Phys. 78 (4), 15 August 1995, pp. 2298-2302.					
		Lu et al., "Reduction of secondary defect formation in MeV B + ion-implanted Si(100)", Appl. Phys. Lett, 655 (18), 30 Oct 1989, pp. 1838 - 1840.					
EXAMINER				DATE CONSIDERED			
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EXAMINER

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